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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/611,419 | 06/30/2003 | Yee-Chung Fu | Q01-1041-US1 / 11198.71 | 5714 |

7590 10/24/2005

The Law Office of Steven G. Roeder
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| EXAMINER | |
|---|---|
| CHEN, TIANJIE | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2652 | |

DATE MAILED: 10/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/611,419 | FU ET AL. | |
| | Examiner | Art Unit | |
| | Tianjie Chen | 2652 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *11 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-7,9-21,23-35 and 37-68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9-21,23-35,37-68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.



BY

# *Final Rejection*

## *Election/Restrictions*

1. This application contains claims 8, 22, and 36 drawn to an invention nonelected with traverse in Paper filed on 06/26/2005. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

## *Claim Rejections - 35 USC § 102*

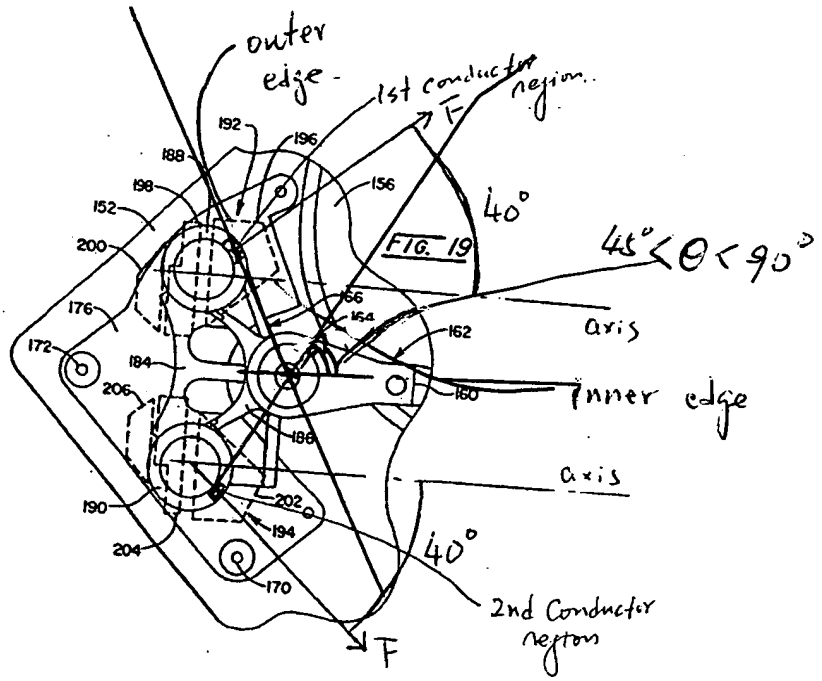
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 9-19, 23-35, 37, 38, 41-52, 55, 59-61, and 64-66 are rejected under 35 U.S.C. 102(b) as being anticipated by Wasson (US 5,295,031).

Claims 1, 32, 49, and 59; Wasson shows a disk drive including; an inherent storage disk having a plurality of tracks; a data transducer 18 (Fig. 2; column 6, line 18); an actuator assembly 162 (Fig. 19) that supports the data transducer over one of the tracks, the actuator assembly having a rotatable actuator hub 164 and a longitudinal axis (Fig. 20), the actuator hub being subjected to a resultant force that can cause track misregistration of the data transducer during movement of the actuator assembly; and a positioner that moves the actuator assembly relative to the storage disk, the positioner including (i) a magnet assembly 194+196 and etc. (Column 12, lines 44-64) that generates a magnetic field, and (ii) a first conductor region 188 (See Fig. 19 attached below with added marks) that cooperates with the magnet

assembly to generate a first force that is directed at an angle having an absolute value that is greater than zero degrees and less than approximately 45 degrees relative to the longitudinal axis of the actuator assembly inherently at least partially offset the resultant force at the actuator hub.




With regard to claims 49 and 59, Wasson further shows that the magnet assembly having an inner edge and an opposed outer edge relative to the actuator hub, and the first conductor region that is positioned between and defined by the edges of the first magnet (Se the figure above).

Claims 2, 50, and 60; Wasson further shows a second conductor region 190 that cooperates with the magnet assembly to generate a second force (Fig. 19 above) that is directed at an angle having an absolute value that is greater than zero degrees

and less than approximately 45 degrees relative to the longitudinal axis of the actuator assembly.

Claim 33, Wasson shows a second conductor region that interacts with the magnetic field inherently at least partially offset the resultant force at the actuator hub.

Claim 16, Wasson shows a disk drive including; a storage disk having a plurality of tracks; a data transducer; an actuator assembly that supports the data transducer over one of the tracks, the actuator assembly having a rotatable actuator hub and a longitudinal axis, the actuator hub being subjected to a resultant force that can cause track misregistration of the data transducer during movement of the actuator assembly; and a positioner coupled to the actuator assembly, the positioner moving the actuator assembly relative to the storage disk, the positioner including (i) a magnet assembly that generates a magnetic field, and (ii) a chosen conductor assembly having a first conductor region that is positioned at an angle having an absolute value of greater than approximately 45 degrees and less than 90 degrees relative to the longitudinal axis of the actuator assembly, the first conductor region interacting with the magnetic field to at least partially offset the resultant force at the actuator hub.

Claim 17, Wasson shows a chosen conductor assembly includes a second conductor region that is positioned at an angle having an absolute value of greater than approximately 45 degrees and less than 90 degrees relative to the longitudinal axis of the actuator assembly, the second conductor assembly interacting with the magnetic field to at least partially offset the resultant force at the actuator hub.

Claims 3, 29, 34, 51, 66; the sum of the first force and the second force is inherently substantially equal to and directionally opposite the resultant force.

Claims 4, 18, Wasson further shows that the first conductor region and the second conductor region are positioned symmetrically on opposite sides of the longitudinal axis of the actuator assembly.

Claims 5, 19, 35, 52, and 61; Wasson further shows that the magnet assembly includes a first magnet 192 and a second magnet 194, and wherein the first and second conductor regions are positioned directly between the first and second magnets.

Claims 9, 23, and 37, Wasson further shows that the conductor assembly includes (i) a first coil 188 that includes the first conductor region, and (ii) a spaced apart second coil 190 that includes the second conductor region.

Claims 10, 24, Wasson further shows that the first coil and the second coil are substantially symmetrical relative to the longitudinal axis of the actuator assembly.

Claims 11, 25, and 38, Wasson further shows that the magnet assembly includes a first magnet and a second magnet, and wherein the first and second conductor regions are positioned directly between the first and second magnets (Column 9, lines 14-19).

Claims 12, 13, 26, 27, and 42, Wasson shows a first conductor region and the second conductor region are positioned at an angle having an absolute value that is greater than approximately 60/70 degrees and less than 89/85 degrees relative to the longitudinal axis of the actuator assembly.

Claims 14, 28, 30, and 65; there still some region can be chosen as a first force is directed at an angle having an absolute value that is greater than one degree and

less than approximately 30 degrees relative to the longitudinal axis of the actuator assembly, and the second force is directed at an angle having an absolute value that is greater than one/zero degree and less than approximately 30/45 degrees relative to the longitudinal axis of the actuator assembly.

Claims 15, 31, and 43, Wasson shows in claim 23, list two lines an inherent a control system that independently directs current to each of the conductor regions, thus being able to reverse the current in one coil.

Claims 41, 55 and 64, Wasson further shows that the first conductor region and the second conductor region are positioned at an angle θ having an absolute value that is greater than approximately 45/60 degrees and less than 90/89 degrees relative to the longitudinal axis of the actuator assembly (See Figure shown above).

Claim 44, the above described Wasson's device includes a method for positioning a data transducer in a disk drive, the method including the steps of: supporting the data transducer with an actuator assembly having a longitudinal axis; and positioning the actuator assembly utilizing a positioner that includes (i) a magnet assembly that generates a magnetic field, and (ii) a first conductor region that cooperates with the magnet assembly to generate a first force that is directed at an angle having an absolute value that is greater than zero degrees and less than approximately 45 degrees relative to the longitudinal axis of the actuator assembly.

Claims 45 and 46, the above described Wasson's device includes a method, which includes the steps: the step of positioning the actuator assembly includes utilizing a positioner that includes a second conductor region that cooperates with the magnet assembly to generate a second force that is directed at an angle having an absolute value that is greater than zero degrees and less than approximately 45

degrees relative to the longitudinal axis of the actuator assembly; the step of positioning the first conductor region and the second conductor region each at an angle having an absolute value of greater than approximately 45 degrees and less than 90 degrees relative to the longitudinal axis of the actuator assembly.

Claim 47, the above described Wasson's device includes a method for positioning a data transducer in a disk drive, the method including the steps of: supporting the data transducer with an actuator assembly having a longitudinal axis; and positioning the actuator assembly utilizing a positioner that includes (i) a magnet assembly that generates a magnetic field, and (ii) a first conductor region that is positioned at an angle having an absolute value of greater than approximately 45 degrees and less than 90 degrees relative to the longitudinal axis of the actuator assembly.

Claim 48, the above described Wasson's device includes a method includes the step of positioning the actuator assembly includes the step of positioning a second conductor region at an angle having an absolute value of greater than approximately 45 degrees and less than 90 degrees relative to the longitudinal axis of the actuator assembly.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 6, 7, 20, 21, 39, 40, 52, 54, 57, 58, 62, 63, and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wasson in view of Aruga et al (US 5,764,441).

Claims 6, 7, 20, 21, 39, 40, 53, 54; 62, and 63; Wasson shows that outer regions of the magnet has a magnet width that is greater then a magnet width of the inner regions in Fig. 19; but does not show that the first magnet includes a first facing surface and a pair of outer regions, each outer region having a north pole on the first facing surface, the outer regions of the first magnet being connected by an inner region having a south pole on the first facing surface, and wherein the second magnet includes a second facing surface and a pair of outer regions, each outer region having a south pole on the second facing surface, the outer regions of the second magnet being connected by an inner region having a north pole on the second facing surface.

Aruga et al shows an actuator assembly, wherein Fig. 9B shows that the first magnet 181' includes a first facing surface and a pair of outer regions, each outer region having a north pole on the first facing surface, the outer regions of the first magnet being connected by an inner region having a south pole on the first facing surface, and wherein the second magnet 181 includes a second facing surface and a pair of outer regions, each outer region having a south pole on the second facing surface, the outer regions of the second magnet being connected by an inner region having a north pole on the second facing surface. Aruga et al also teaches that this arrangement has the advantages, which are recited in column 8, line 45 to column 9, line 3. One of ordinary skill in the art would have been motivated to use this arrangement for the advantages recited in Aruga et al.

Claims 57, 58, and 68; Wasson shows an embodiment, wherein a coil is shown as round as an example. Wasson also teaches that a substantially round coil is generally preferred and is convenient and less expensive to manufacture (Column 13, lines 59-65). Aruga et al shows a coil, which is substantially round. One of ordinary skill in the art would have been motivated to include Aruga et al's coil as an option for being convenient and less expensive in manufacture. In thus constructed device, at least a portion of the first conductor region and at least a portion of the second conductor region are each substantially linear.

4. Claims 56 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wasson in view of Miyamoto et al (US 6,225,712).

Miyamoto shows a control system that independently directs current to each of the conductor region for switching the currents in two coils from in the same direction to opposite directions; thus switching the actuator between the tracking operation seek operation (Column 10, lines 39-62). One of ordinary skill in the art would have been motivated to add the control system to be able to switch the actuator between the tracking operation and seeking operation.

***Response to Arguments***

5. Applicant's arguments filed 10/11/2005 have been fully considered but they are not persuasive.

- Applicant argues: 'the force generated by the section of coil indicated in the "added marks" annotated by the Patent Office is not, in and of itself, a separate force. Instead, the random section of coil chosen by the Patent Office

contributes to an overall force of the entire continuous section of coil positioned between the magnet assembly."

- Examiner's position: Applicant uses term "conductor region" in claims; therefore, a sector of the coil is properly read as a "conductor region."

- Applicant argues: "the small vectors would not offset the resultant force, but would appear to be additive to it."
  - Examiner's position: The resultant force is a vector. Offsetting a vector can be either changing the magnitude or turning the orientation of the vector. As far as the force is not in the same direction as the resultant force, the addition of the force will, at least, turn the orientation of the resultant force, i.e. offsets the resultant force.

***Conclusion***

6. The prior art made of record in PTO-892 Form and not relied upon is considered pertinent to applicant's disclosure.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date

of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tianjie Chen whose telephone number is 571-272-7570. The examiner can normally be reached on 8:00-4:30, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on 571-272-7579. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TIANJIE CHEN
PRIMARY EXAMINER